

The Morphological Characters and Physiological Function of Source Organs in Bt-transgenic Cotton

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Abstract: The leaf area per plant, LAI and the number of lateral roots of Bt transgenic cotton (cv. CCRI 30) are much less than those of its recurrent parents (cv. CCRI 16), which make the exporting rate of sucrose, soluble sugar, amino acids and total nitrogen from sympodial leaves and the importing rate of these substances into ball decrease dramatically. The exudation rate of bleeding sap and Pi , NO_3^- and amino acids exudation rate in it in terms of per plant of CCRI

30 are lower significantly than those of CCRI 16 from early-blooming stage to mass ball-forming stage, which indicate the decrease of root activity, uptake ability, synthetic ability and transporting ability of CCRI 30 in terms of per plant. It is interesting that the coordination of roots and shoots in CCRI 30 is excellent before full-blooming stage (reflected by the exudation rate of bleeding sap and Pi , NO_3^- and amino acids exudation rate in it in terms of dry weight of shoots), and this coordination does not become bad until ball-forming stage. The proper manage measures for Bt cotton and the methods of collecting phloem sap using EDTA are also discussed.

Key words: Bt cotton; leaves; roots; morphological characters; physiological function